CHAPTER 6

Conclusions

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6.1 Introduction

The Project Management Institute (2004), defines project as a temporary, definitive beginning and definitive end, endeavor undertaken to create a unique product or service. Projects can be considered as an achievement of a specific objective and involves the utilization of resources on a series of activities or tasks. It is at this crucial stage where risks associated with the project are analyzed and the specific project execution approach is defined. Secondly it is also important to be successful in the business. Practitioners have analyzed that one of the severest risk is incapable people (Fichter et al. 2003).

The main reason for failure in implantation of Software Process Improvement (SPI) can be explained by the lack of ability of organizations in introducing, implanting and institutionalizing policies regarding selection, recruitment and development of the people that would be working on the projects (Sharp et al. 2005). The methods used for recruiting and developing the project personnel are superficial, assumption based or derived from insufficient knowledge. Secondly most improvement is focused on process or technology rather than human aspects (McDermid et al., 1999).

The motivation behind this study was to understand from perspective of human component what role it plays in success or failure of a software.

The orientation of the study was towards establishing a relationship between software quality and project personnel's performance. Therefore it was important to find effective technical and other factors related to project personnel that contribute towards good performance which in turn impacts the development of the software. It was seen that big companies which were established long back could not withstand the competition given by new and smaller companies with very less employees. Surely, big companies had all process well defined as compared to startup companies. Even with 2-3 employees many startup companies became very popular (Townsend et al. 2007). This motivated to understand the people component rather than process component of a software company. There after it was utmost important to analyze it deeply.
People are the most important assets for any organization. Also, organization is responsible for their employees. Similarly, every employee has to perform best in his assigned organizational duties. Any Project starts with assigning a project team. Recruitment and selection are framework for success for any organization and companies generally do not follow a dynamic and computational method for doing the same (Ramamoorthy et al., 1984). Also, it has been noticed by software practitioners that there is a positive relationship between performance of the project personnel and the quality of software. This further impacts the revenue growth and profitability (Neilsen et al. 1994). Therefore the motivation and objective of the research was to find the relevant factors which contribute to high performance of project personnel in software development process.

It has also been observed that though many companies produce similar products but the companies which give importance to their people component are well established (Demarco et al. 2003). These organizations have achieved advantage and competitive edge by keeping in focus on people component.

The success of the software developed largely depends on competent, capable and motivated members. Such employees are greatest asset of organization (Thayer, 2007). Skilled employees within a satisfactory work culture provide optimum contribution and value addition as per their potentials. Organization can achieve the goals if it is able to select and maintain right type of project personnel.

However, to analyze and arrive at exact conclusions a computational method was required. This research study therefore used data mining methods to achieve the same.

6.2 Major Observations

In order to understand technical abilities which contribute largely for good performance, data mining techniques especially Classification like Bayes’ classification, ID3, CART (Classification and Regression Tree), etc. were used. Data mining tool Weka was used for analyzing large data sets.
Looking at results of data mining techniques and analyzing the responses, major findings are that it is utmost important for any organization to focus on performance of the team members from time to time. This dynamic strategy will reveal the factors which contribute to good performance and further enhance the quality of the software developed and contribute largely to software success.

In the current days, with changing business requirements, companies need to develop a parametric approach for tapping the right talent and continue doing performance analysis. Based on the reports of performance analysis, the organization can make correction plans. Companies can recruit and select the right talent, maintain and develop by the help of this research finding.

6.3 Limitations of the Study

There are many factors which influence performance of the project personnel. They include technical and non-technical attributes and social and economic factors too (Madni et al., 2005). It is however difficult to take into consideration all the attributes. This study has taken into consideration few technical attributes.

Secondly, the study is limited to project personnel who are working on web based applications. Apart from such systems, there are legacy systems, database systems, ERP systems, system programming etc which can have similar approach. Different domains in software industry need different expertise. However the same methodology can be extended to any software industry or as a matter of fact any other industry with the relevant background and data.

Thirdly the study can be extended to other data mining techniques since this study concentrated on popular classification techniques. Data mining has huge set of algorithms as described in chapter 2. Further scope of research is using different data mining techniques.

Fourthly the study was done with data from software companies in Bangalore, India.
6.4 Summary

Production of software which satisfies customer in the current global scenarios is one of the challenges that every industry has to face with. Thus, software industry has oriented its focus for development of quality software on human aspect since it relies on human mind to produce innovative system for having competitive edge over other companies. The root factor in human aspect is the right project personnel (Tamara Sumner, 1995).

Different companies follow different strategies for having a good talent pool. Data mining approach has precisely brought out the factors which are needed in project personnel. It is utmost important for every company to understand performance gaps, deploy a framework for root cause analysis for these performance gaps and adopt strategies to fill these needs. Such applications of developing and maintaining a good talent pool will improve the productivity of the organization. With the help of data mining algorithms, it is now possible to carry out a parametric performance analysis and look deeply into those aspects which will enhance the performance of the employee and thereby contribute to growth of the company.

This study will help largely the software company to hire the right project personnel for better turnover. This investigation is successful in throwing light upon a methodology which can derive those human related competency attributes which is required to be emphasized whenever project staffing happens before the launch of software projects by the project managers. Performance management will become top priority for software companies and other industries in coming days.

This study therefore aimed at analyzing contributions in the area of human aspects by providing empirical data from specific domain of software industry to know more about real practices and situation in software organizations and to make significant changes in the human related policies based on the derived knowledge.